New

Ministry

Transportation and Economic Corridors

Describe: Basic Job Details

Position

Position ID

Position Name (30 characters)

Senior Data Analyst

Requested Class

Program Services 4

Job Focus

Supervisory Level

Agency (ministry) code

Cost Centre

Program Code: (enter if required)

Employee

Employee Name (or Vacant)

Organizational Structure

Division, Branch/Unit

☑ Current organizational chart attached?

Supervisor's Position ID

Supervisor's Position Name (30 characters)

Supervisor's Current Class

Design: Identify Job Duties and Value

Job Purpose and Organizational Context

Why the job exists:

Transportation and Economic Corridors (TEC) is a centre of excellence for transportation in North America. We contribute to Alberta's prosperity and quality of life by providing and supporting a safe, innovative, and sustainable provincial transportation system and water management infrastructure. With Transportation and Economic Corridors, you can engage in a fulfilling career with diverse room to grow. We believe in building careers, providing opportunities for growth within the organization, and strive to provide our staff with a work-life balance including reasonable hours of work to ensure time with family and to accommodate outside interests.

The department promotes a vital and diverse economy by:
Managing transportation safety
Supporting municipalities with public transportation and water/wastewater facilities
Expanding and enhancing a well-integrated transportation system and enabling market access

This position reports to the Manager, Data and Analytics within Traffic Safety Services (TSS) division of TEC. The Senior Data Analyst leads the analysis of complex traffic safety datasets and extracts key insights and interpretations to drive evidence based policy and business decision making. The Senior Data Analyst is responsible for advancing the organization's business intelligence and developing

innovative solutions that address complex, high impact strategic planning needs. The Senior Data Analysts act as a centralized service within the division and respond to a variety of data inquiries, data analysis projects to convey historical, current and future data trends and patterns related to traffic safety initiatives and programs.

Responsibilities

Job outcomes (4-6 core results), and for each outcome, 4-6 corresponding activities:

1. Advanced Data Analysis and Comprehension
- Lead complex data analysis projects by applying advanced statistical methods and techniques to extract actionable insights.
- Identify emerging trends or patterns in traffic safety data and investigate contributing factors to help inform policy decisions
-Provide comprehensive data interpretation that informs strategic decisions and policy recommendations to Senior Management, Deputy Minister, Minister, Transport Canada and other traffic safety related non-profits.
- Present findings in a clear and impactful way, using data visualization and storytelling techniques to communicate insights to senior leadership and stakeholders.

2. Strategic Data Reporting and Dashboards
- Design, develop, and maintain advanced reporting systems and interactive dashboards that support performance measurement, program evaluation, and decision-making.
- Ensure that reports and dashboards provide real-time, actionable insights, are user-friendly, and align with departmental goals and outcomes.
- Regularly update data visualizations and reports based on evolving program needs and priorities.
- Leverages GIS mapping tools to provide meaningful insights and data visuals specific to spatial data such as collisions, traffic volume and carrier routes to help analyze and convey geographic patterns.

3. Predictive and Prescriptive Analytics
- Utilize predictive modeling, machine learning, natural language processing techniques and other advanced analytical techniques to forecast future trends, assess risks, and develop prescriptive recommendations.
- Lead initiatives that leverage data analytics to optimize program delivery and improve service outcomes within Traffic Safety Services operations.
- Synthesizes and analyzes historical data, statistical and common algorithms (such as linear regression, logistic regression, decision trees, and time series analysis) to build and validate data models.
- Works collaboratively on root cause analysis on complex issues related to data integration, ETL processes and data integrity.

4. Data Governance and Standards
- Lead the implementation of data governance frameworks, ensuring data is accurate, reliable, and consistent across government systems.
- Develop and enforce best practices for data quality assurance, ensuring data integrity, security, and privacy across all analytical initiatives.
- Lead work with Data Quality Analysts and cross-functional teams to address data quality issues and enhance data standards, including optimizing data processes by using automation tools and scripts.

5. Policy Development and Evaluation
- Provide data-driven insights to inform the development of policies, regulations, and strategic initiatives.
- Participate in government working groups and committees, providing expert level analytical support to evaluate the effectiveness and impact of traffic safety programs using rigorous data analysis methods, recommending improvements based on findings.
- Provides guidance, clarification and direction on traffic safety information and data to contractors and consultants.
- Collaborate with stakeholders to design evaluation frameworks and conduct cost-benefit analyses of various government initiatives.

- Advises senior executives and division representatives participating in inter-provincial, national, international and external stakeholder meetings and committees including the provision of statistical summaries, key insights and leading meeting briefings.
- Develops recommendations to Senior Management based on insights gained through data analysis and interpretation.
- Develops and determines appropriate statistics and data visualizations for a variety of external facing communications products including Alberta.ca; media inquiries; instructions manuals; powerpoint presentations.

Problem Solving

Typical problems solved:

- The Senior Data Analyst is a traffic safety data expert and the most senior analyst responsible for ensuring highly technical data insights and statistics are translated into compelling recommendations, stories and data visualizations to be consumed by non-technical senior leaders and the public. The Senior Data Analyst ensures that data integrity is paramount through their detail orientated, systems-based approach to breaking down complex data problems into actionable insights. At times, the Senior Data Analyst may be asked to analyze data that may have be without precedent and to find patterns and insights in the data. The Senior Data Analyst independently evaluates the data sets and the best mechanism to communicate their insights from the data sets and leads the development of recommendations to target audience and stakeholders. The Senior Data Analyst takes an agile approach to their work and may be required to produce statistical insights and recommendations with very little turn around. The SDA independently assesses the availability of data, source and extent to which it can be released externally considering Alberta's privacy legislation framework.

Types of guidance available for problem solving:

The SDA leads and influences policy development and advice to Senior Officials independently. The SDA is often the only individual in the Division with data analytics expertise and must work independently to influence and support non-technical senior leaders to understand data insights. The Manager, Data and Analytics can support the SDA by removing roadblocks and organizational challenges.

Direct or indirect impacts of decisions:

Decisions made in this role directly impacts the external and internal reputation of the Traffic Safety Services Division and its ability to make evidence based decisions on traffic safety programs.

Key Relationships

Major stakeholders and purpose of interactions:

Manager, Data and Analytics (weekly-biweekly)
- Touch base on a weekly or bi-weekly basis through team meeting and as needed to communicate any hurdles, challenges or bottle necks
- Collaborating develop project vision and goals and take direction on new projects and initiatives.
- Communicate status of ongoing projects and initiatives

Public (adhoc)
- Respond to and engage with as needed to fulfill data requests

Partner Agencies (annually monthly, ad-hoc)
- Contribute to various monthly and annual publications and databases
- Participate in working groups and inform committees, briefings, etc when required.

Senior Executives and Decision Makers (adhoc)
- lead and influence policy development through the preparation of statistical summaries, reports and briefing materials.

Required Education, Experience and Technical Competencies

Education Level	Focus/Major	2nd Major/Minor if applicable	Designation
Bachelor's Degree (4 year)	Science	Engineering	

If other, specify:

Data Science, Statistics, Computer Science, Engineering, Business Intelligence, Analytics or related.

Job-specific experience, technical competencies, certification and/or training:

- University degree in Economics, Mathematics, Data Science, Statistics, Computer Science, Business Intelligence, Analytics or related fields. Masters degree Preferred. Evidence of ongoing professional development is an asset.
- Proficiency in advanced data visualization tools and reporting platforms (e.g., Power BI, Tableau) to create interactive dashboards and reports.
- Strong ability to use visualization techniques to communicate insights clearly and effectively to senior leadership and external stakeholders.
- Expertise in SQL for querying, analyzing, and manipulating large datasets from relational databases.
- Proficiency in using programming languages for data analysis (e.g., Python, R)
- Expertise in statistical modeling, regression analysis, time series forecasting, clustering, and multivariate analysis.
- Proficiency in applying machine learning algorithms and advanced analytics techniques (e.g., supervised/ unsupervised learning) to solve complex problems.
- Ability to interpret and present complex analytical results to both technical and non-technical stakeholders.
- Strong knowledge of data management principles, including data governance, metadata management, and data integration across diverse sources (e.g., databases, APIs).
- Knowledge of business intelligence principles, performance measurement frameworks, and decision support systems.
- Ability to provide actionable insights through the development and delivery of KPIs, performance metrics, and real-time decision-making tools for government programs.
- Deep understanding of data governance frameworks and best practices, ensuring data privacy, security, and compliance with regulations such as the Access to Information Act (ATIA), the Protection of Privacy Act (POPA) and the Access to Motor Vehicle Information Regulation (AMVIR).
- Strong experience with data quality management, including data cleansing, validation, cataloging, and monitoring for data integrity.
- Proven ability to manage complex data projects from inception to completion, ensuring timely delivery, quality control, and alignment with business objectives.
- Strong project management skills, including managing resources, timelines, and deliverables across multiple teams and departments.
- In-depth understanding of public sector operations and government program structures, with the ability to tailor data analysis to inform program performance and policy development.
- Ability to evaluate the effectiveness of government initiatives, identify gaps, and propose data-driven solutions for improvement.
- Excellent written and verbal communication skills, including the ability to present data findings to a wide range of audiences, from technical teams to senior executives and government officials.
- Strong interpersonal skills to collaborate with various departments and stakeholders, influencing decision-making through data-driven insights.
- Proven leadership ability to mentor and guide junior data analysts, fostering a culture of continuous learning and development.

Behavioral Competencies

Pick 4-5 representative behavioral competencies and their level.

Competency	Level A B C D E	Level Definition	Examples of how this level best represents the job
Systems Thinking	○ ○ ◉ ○ ○	Takes a long-term view towards organization's objectives and how to achieve them: • Takes holistic long-term view of challenges and opportunities	Senior Data Analyst has a well rounded and deep understanding of TEC's 48 technology applications and the data sets within each and the interrelationships

		• Anticipates outcomes and potential impacts, seeks stakeholder perspectives • Works towards actions and plans aligned with APS values • Works with others to identify areas for collaboration	between the data sets. The SDA influences the development of a data governance framework in conjunction with Technology and Innovation.
Creative Problem Solving	○ ○ ◉ ○ ○	Engages the community and resources at hand to address issues: • Engages perspective to seek root causes • Finds ways to improve complex systems • Employs resources from other areas to solve problems • Engages others and encourages debate and idea generation to solve problems while addressing risks	Develops compelling insights and recommendations through creative storytelling and data visuals that meet the needs of non-technical senior leaders. Utilizes new technologies and approaches to distill data insights. Challenges the status quo and provides insights that may be new and novel.
Develop Networks	○ ◉ ○ ○ ○	Works on maintaining close relations with all stakeholders: • Identifies key stakeholder relationships • Has contact with range of interested parties • Actively incorporates needs of a broader group • Influences others through communication techniques	Actively develops connections and influences others through the course of their duties. Actively engages with provincial, federal colleagues to support the goals of the TSS division. Influences stakeholders through the unique and compelling data visualization techniques.
Develop Self and Others	○ ○ ◉ ○ ○	Plans according to career goals and regular development: • Aligns personal goals with career goals • Leverages strengths; attempts stretch goals • Provides feedback and openly discusses team performance • Values team diversity, and supports personal development	The SDA takes a life long learning approach to data analysis and learns new techniques and data analysis software as it becomes available. Supports and influences fellow teammates in their data analytics learning journey.